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A DISEASE OF GLOXINIAS CAUSED BY FOLIAR NEMATODES.

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INTRODUCTION: Gloxinias, *Sinningia speciosa* (Lodd.) Hiern., are widely grown ornamentals in the family Gesneriaceae. More than 1800 species, most of which are indigenous to tropical regions, have been described in this family. African violets, *Saintpaulia ionantha* H. Wendl., also belong to this family, as well as other ornamental plants in the genera *Achimenes*, *Aeschynanthus*, *Columnea*, *Episcia*, *Nemathanathus*, and *Streptocarpus*. Foliar nematodes were first reported as a problem on gloxinia in Switzerland in 1899 (9). In addition to gloxinias, foliar nematodes have been reported infecting the following commercially grown gesneriads: *Episcia lilacina* (3); *Saintpaulia ionantha* (3,10); *S. magungensis* (8); and *Streptocarpus* (1,6).

Two species of foliar nematodes are known to infect gloxinias. *Aphelenchoides fragariae* (Ritzema-Bos) Christie has been reported on gloxinias in Australia, Germany, the U.S.S.R., and Switzerland (2,6,7,8,9). *A. ritzemabosi* (Schwartz) Steiner and Buhrer has been reported from Germany, the United States (Florida), and Yugoslavia (4,5,11). Both species of foliar nematodes cause similar symptoms on gloxinia.

SYMPTOMS: The first external symptom associated with nematode infection of gloxinia leaves is dark water-soaked areas (2). Light brown lesions, which are usually vein-delimited, tend to develop first on the lower leaf surface (9). As infection progresses, large areas near the leaf margins, especially near the leaf apex, may become dark, dry, and necrotic, giving the leaf a somewhat scorched appearance (Fig. 1) (9,11). Similar symptoms may also be caused by a fungus *Phytophthora cryptogea* Pethbybr. and Lafferty which causes crown rot of gloxinia. In the case of this fungal infection, however, typically the leaf petioles collapse and become dry, and necrotic dry areas develop at the base of the leaf (11). Foliar nematodes have not been observed causing malformation of leaves in gloxinias, as they do in other gesneriads, such as the rosetting and leaf curling they cause in African violets, or the leaf distortion in *Streptocarpus* where leaves become puckered and reduced in width almost to the midrib at some places (1,10).

Fig. 1. Necrotic areas on the leaf margins of gloxinia caused by *A. ritzemabosi*. Photo courtesy of D. E. Stokes.

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DISSEMINATION AND LIFE CYCLE: Foliar nematodes can easily be disseminated by splashing, and if water films are present on stems and leaves, they are capable of moving on their own at rates of approximately one inch per minute (12). These organisms may enter the leaves through the stomata or through wounds, or they may penetrate host epidermal tissue directly (10).

At temperatures from 17-24 C, *A. fragariae* and *A. ritzemabosi* may complete their life cycle in 10-12 days (10). In some studies, the first symptoms appeared 23 days after gloxinia plants were inoculated with *A. ritzemabosi* (11). Examination of diseased gloxinia tissue indicated that foliar nematodes feed and reproduce in the mesophyll cells as endoparasites and that they cause cell wall collapse and cavities to develop in the foliar tissue (11).

CONTROL: The most economical and effective means of preventing foliar nematode problems on gloxinia is through the use of cultural and sanitation practices. Elimination of overhead watering will reduce the dissemination of nematodes by splashing, and minimize their movement in water films on plant surfaces. Nematode-free potting media, pots, benches, and propagation material should be used. It is especially important that careful sanitation practices are followed in areas where stock plants are grown. Plants purchased from other sources should be isolated from plants in the production areas for 3 to 5 weeks to observe if any symptoms develop due to latent nematode infections.

LITERATURE CITED:

1. **Banck A.** 1974. Bladanematoder i *Streptocarpus* Vaxtskyddsnotiser 38:52-58.
2. **Fraser, L. R.** 1952. New record of foliar nematode. Australian Plant Dis. Rep. 4:36.
3. **Goodey, T.** 1933. Plant parasitic nematodes and the diseases they cause. E. P. Dutton Co., N.Y. 306 pp.
4. **Grusjicic, G. D. Jovicic,,** and **B.Baric.** 1987. Occurrence and distribution of phytoparasitic nematodes on ornamental plants in Serbia. Zastitat Bilja 38:49-58.
5. **Junges, W.** 1938. Systematik und Variabilitat der pflanzenparasitischen Aphelenchen sowie deren Veitbreitung und verschiedenen Wirtspflanzen. Zeitschrift fur Parasitenkunde, 10:559-607.
6. **Khair, G. T.** 1981. List of plant parasitic nematodes of Australia. Commonwealth of Australia Department of Health and Quarantine Branch, Canberra, 3rd edition. 156 pp.
7. **Marcinowski, K.** 1908. Untersuchungen uber Nematoden. Mitt. Ksl. Biol.Anst. Land-u. Forstwirtscgaaft 6:40-43.
8. **Matveeva, M. A.,** and **G. I. Shakhova.** 1980. The presence of *Aphelenchoides fragariae* infection on Filicales and Gesneriaceae grown in glasshouses. Referationyi Zhurnal Fitopatologiya 4:169-173.
9. **Osterwalder A.** 1899. Eine epidemische Erkrankung der Gloxinien, verursacht durch eine Anguillula Schweiz Gartenbau 12:351.
10. **Reidel, R. M.** 1985. Nematode problems, pp. 295-312. In: Diseases of floral crops. Vol. I. (D. L. Strider, ed.) Praeger, NY. 638 pp.
11. **Stokes, D. E.** and **S. A. Alfieri, Jr.** 1968. A foliar nematode and a *Phythopthora* parasitic to gloxinia. Proc. Fla. State Hort. Soc. 81:376-380.
12. **Wallace, H. R.** 1959. Movement of eelworms. V. Observations on *Aphelenchoides ritzema-bosi* (Schwartz, 1912) Steiner 1932 on florists' chrysanthemums. Ann. Appl. Biol. 47:350-360.